

Surface Mount Directional Coupler

TCD-9-1W+ TCD-9-1W

50Ω

5 to 2000 MHz



Maximum Ratings

Operating Temperature	-40°C to 85°C
Storage Temperature	-55°C to 100°C

Pin Connections

INPUT	3
OUTPUT	4
COUPLED	1
GROUND	2
50Ω TERM EXTERNAL	6
NOT USED	5

Features

- wideband, 5 to 2000 MHz
- low mainline loss, 1.2 dB typ. (5-1000 MHz)
- aqueous washable
- leads for excellent solderability
- protected by US Patent 6,140,887

Applications

- GPS
- cellular
- satellite distribution
- cable tv

CASE STYLE: DB714
PRICE: \$1.49 ea. QTY (25)

+ RoHS compliant in accordance with EU Directive (2002/95/EC)

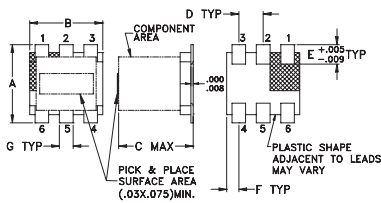
The +Suffix identifies RoHS Compliance. See our web site for RoHS Compliance methodologies and qualifications.

Directional Coupler Electrical Specifications

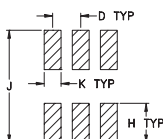
FREQ. RANGE (MHz)	COUPLING (dB)		MAINLINE LOSS ¹ (dB)						DIRECTIVITY (dB)			VSWR (:1)	POWER INPUT, W				
	Nom.	Flatness	L		M		U		L		M		U	Typ.	L	MU	
f_L - f_U			Typ.	Max.	Typ.	Max.	Typ.	Max.	Typ.	Min.	Typ.	Min.	Typ.	Max.	Max.		
5-1000	8.9±0.5	±0.6	1.2	2.1	1.2	1.8	1.5	2.1	21	17	17	10	13	—	1.30	0.5	1.0
1000-2000	8.9±0.5	±0.6	—	—	2.5	—	—	—	—	—	10	—	—	—	1.60	—	1.0

L = low range [f_L to $10 f_L$] M = mid range [$10 f_L$ to $f_U/2$] U = upper range [$f_U/2$ to f_U]
1. Mainline loss includes theoretical power loss at coupled port.

Outline Drawing



PCB Land Pattern

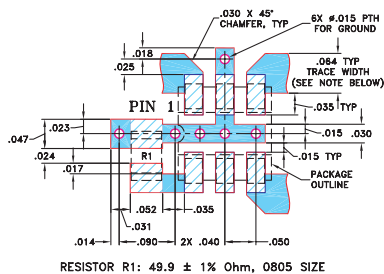


Suggested Layout.
Tolerance to be within ±.002

Outline Dimensions (inch/mm)

A	B	C	D	E	F
.160	.150	.160	.050	.040	.025
4.06	3.81	4.06	1.27	1.02	0.64
G	H	J	K	wt	
.028	.065	.190	.030	grams	
0.71	1.65	4.83	0.76	0.15	

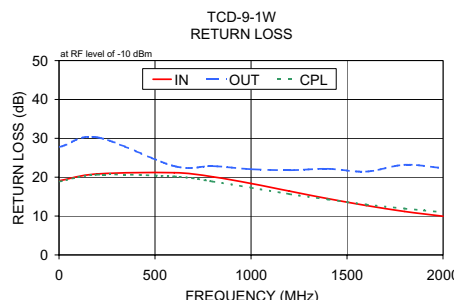
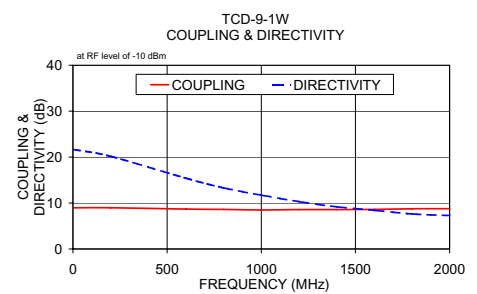
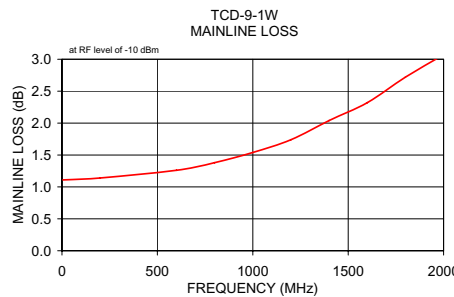
Demo Board MCL P/N: TB-71 Suggested PCB Layout (PL-009)



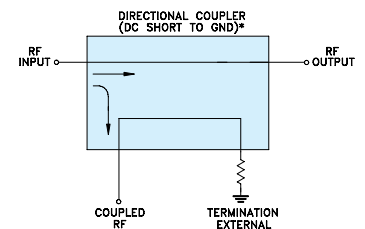
- NOTES: 1. TRACE WIDTH IS SHOWN FOR ROGERS RO4350B WITH DIELECTRIC THICKNESS 0.050" ± 0.002". COPPER: 1/2 OZ. EACH SIDE. FOR OTHER MATERIALS TRACE WIDTH MAY NEED TO BE MODIFIED.
2. BOTTOM SIDE OF THE PCB IS CONTINUOUS GROUND PLANE.
■ DENOTES PCB COPPER LAYOUT WITH SMOBC (SOLDER MASK OVER BARE COPPER)
■ DENOTES COPPER LAND PATTERN FREE OF SOLDER MASK

Typical Performance Data

Frequency (MHz)	Mainline Loss (dB) In-Out	Coupling (dB) In-Cpl	Directivity (dB)	Return Loss (dB)		
				In	Out	Cpl
5.00	1.11	8.96	21.65	19.14	27.81	18.92
200.00	1.14	8.97	20.18	20.84	30.26	20.66
600.00	1.26	8.67	15.41	21.16	22.87	20.18
800.00	1.38	8.61	13.30	20.11	22.87	18.90
1000.00	1.54	8.48	11.72	18.37	22.07	17.30
1200.00	1.74	8.57	10.31	16.42	21.82	15.67
1400.00	2.04	8.57	9.19	14.49	22.16	14.29
1600.00	2.32	8.61	8.42	12.72	21.46	12.97
1800.00	2.72	8.75	7.63	11.17	23.19	11.93
2000.00	3.07	8.76	7.28	9.96	22.33	10.99



Electrical Schematic



* ELECTRICAL SCHEMATIC IS FOR DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) AND EXTERNAL TERMINATION.

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